THE GENUS LYSIMACHIA IN THE NEW WORLD

BY

JAMES DAVIS RAY, JR.
B.S., Mississippi State College, 1939
M.S., Mississippi State College, 1947

AN ABSTRACT OF A THESIS

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN BOTONY
IN THE GRADUATE COLLEGE OF THE
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THE GENUS LYSIMACHIA IN THE NEW WORLD

Lysimachia is a large and discontinuously wide-ranging genus of the family Primulaceae found in almost all temperate and subtropical parts of the world as well as in some tropical montane regions. In America the greatest concentration of species and diversity appears in the Appalachian region of the southeastern United States. This area is not considered as a center of origin for present day species but may represent a development subsequent to a migration of primitive stock from the supposed Asian center.

The genus consists of more than 160 species, and as treated in this monograph is represented in the New World by nineteen species and two putative hybrid populations which form several distinct and natural aggregates. These aggregates on the basis of morphological and distributional studies are considered as five subgenera: namely, *Seleucia* Bigelow, *Lysimachia* (L.) J. D. Ray, *Naumbergia* (Moench) Handel-Mazzetti, *Theopyxis* (Griseb.) J. D. Ray, and *Palladia* Moench) Handel-Mazzetti. *Lysimachia ciliata, tonsa, lanceolata, radicans,* and *quadriflora,* all indigenous to North America north of Mexico compose *Seleucia.* Its type species is *L. ciliata. Lysimachia lanceolata* is a bitypic 21 species. Its morphological subspecies, *L. lanceolata* ssp. *lanceolata,* and *L. Lanceolata* ssp *hybrida* (Michx) J. D. Ray, form two basic morphological groups with sympatric ranges and some degree of ecologic isolation. Subgenus *Lysimachia* includes eight native and introduced species and one intersubgeneric hybrid. *Lysimachia thyrsiflora,* a circumboreal species is of the monotypic subgenus *Lysimachia* to form the rather infertile population designated as *L.* x *commixta.* Isolated in the Sierra Madre of Oaxaca, Mexico and Guatemala and Cordillera de los Andes of Ecuador and Chile are the four species of subgenus *Theopyxis. Lysimachia sertulata* is the type species. *Palladia* is represented by species in cultivation, one, *L. clethroides,* persists as an escape and rarely becomes naturalized.

Each entity considered is accompanied by a synonymy, bibliography, diagnostic description, type locality, statements of habitat, range and flowering period, an abridged list of observed herbarium specimens and a brief discussion. Maps of their geographic distribution and plates of types or authentic material are also given. Keys for the identification of subgenera and species are included. Brief sections on history of the genus, morphology, distribution, generic relationships, interspecific relationships and species concept as applicant to the American species precede the taxonomic section.

Lysimachia sertulata, because of earlier publication is the valid name for the species formerly known as *L. chilensis. Lysimachia validula* is neither a valid species nor a variant of *L. ciliata* but is conspecific with *L. lanceolata* ssp. *hybrida.* Several other previously supposed species are placed in synonomy. No new species has been described.

VITA

James Davis Ray, Jr. was born 5 May 1918, in Starkville, Mississippi. After attending the secondary schools of Starkville for eleven years he entered Mississippi State College in 1935 and received the degree of Bachelor of Science from that institution in 1939. He began his graduate work there at that time and held a graduate assistantship for two years. In September, 1941, he enlisted in the United States Naval Reserve and upon his separation in February, 1946, as Lieutenant Commander, USNR, returned to Mississippi State College as an Instructor in the Department of Botany. He received the Master of Science degree in 1947 from that institution. In 1949 he was granted a two-year leave of absence to enter the Graduate College of the University of Illinois. He is a member of the Botanical Society of America, American Society of Plant Taxonomists, Southern Appalachian Botanical Club, Mississippi Academy Science, and of the honorary societies of Beta Beta Beta, Phi Sigma and Sigma Xi.